b1 cancel

function. Also, it is limited by the ability to employ genes from unknown sources to direct the synthesis of functional properties in commonly used host organisms such as *E. coli* or *Saccharomyces cerevisiae*. --

Kindly replace page 95, line 25, with the following:

b2

--Brennan, Chemical and Eng. News, [74:31033] 74:31-33, 1996--

IN THE CLAIMS:

Please cancel Claims 1-45 without prejudice or disclaimer of the subject matter contained therein.

Please add the following new claims (Support for these claims can be found in **Appendix A** attached hereto):

46. (New) A method for identifying polypeptides having a desired activity using high throughput screening of genomic DNA comprising:

b3

a) providing an expression library containing a plurality of clones, wherein the DNA for generating the library is obtained from a mixed population of organisms;

b) enclosing a fluorescent substrate and at least one clone from the library in a gel microdroplet, wherein the substrate is fluorescent in the presence of the polypeptide having the desired activity;

c) screening the microdroplet with a fluorescent analyzer that detects fluorescence; and

d) identifying clones detected as positive for fluorescence, wherein fluorescence is indicative of DNA that encodes the polypeptide having the desired activity.

47. (New) The method of Claim 46, wherein the polypeptide is an enzyme selected from the group consisting of lipases, esterases, glycosidases, phosphatases, aminotransferases and cellulases.

48. (New) The method of Claim 46, wherein the polypeptide is an enzyme which catalyzes chiral resolutions.

49. (New) The method of Claim 46, wherein the polypeptide is an enzyme which catalyzes peptide synthesis.

50. (New) The method of Claim 46, wherein the library is generated in a prokaryotic cell.

51. (New) The method of Claim 50, wherein the prokaryotic cell is gram negative.

52. (New) The method of Claim 51, wherein the prokaryotic cell is *E. coli*.

53. (New) The method of Claim 46, wherein the expression library contains DNA obtained from extremophiles.

54. (New) The method of Claim 53, wherein the extremophiles are thermophiles.

55. (New) The method of Claim 54 wherein the extremophiles are selected from the group consisting of hyperthermophiles, psychrophiles, halophiles, psychrotrophs, alkalophiles, and acidophiles.

56. (New) The method of Claim 46, wherein the fluorescent analyzer comprises a FACS apparatus.

57. (New) The method of Claim 46 including the additional steps of: subjecting an enzyme encoded by the DNA identified in step d) to directed evolution comprising the steps of:

a) subjecting the enzyme to non-directed mutagenesis; and

b) screening mutant enzymes produced in step a) for a mutant enzyme.

58. (New) The method of claim 46, wherein the DNA for generating the library is genomic DNA from a prokaryote.

B3 cont'd

59. (New) The method of claim 58, wherein the DNA for generating the library is obtained using a culture-independent system.